

# Redescription of the ebony snailfish, *Paraliparis holomelas* Gilbert (Scorpaeniformes: Liparidae), with new records from the Gulf of Alaska and a description of early life history stages

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## Introduction:

Gilbert (1896) described *P. holomelas* from single specimens collected in the Aleutian Islands near Unalaska Island and from the Southeast Bering Sea west of the Pribilof Islands at depths of 742 and 2,972 m, respectively. Two additional specimens were reported by Schmidt (1950) from the Sea of Okhotsk at depths of 128 and 3,250 m. The original descriptions and reported counts of meristic features for some northeastern Pacific species of *Paraliparis*, including *P. holomelas*, are incomplete and based on observations of very few specimens. In addition, the two type specimens are in poor condition, making comparisons with other material difficult. We redescribe adult *P. holomelas* based on examination of 12 additional adult specimens collected in the Gulf of Alaska.

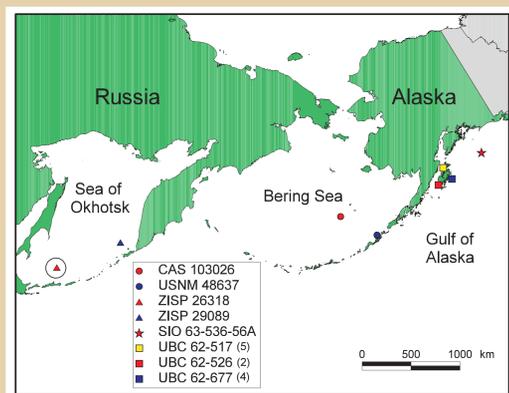


*Paraliparis holomelas*, CAS 103026, paralectotype, sex ?, 100 mm SL, southwest of Pribilof Islands, Alaska. The lectotype (USNM 48637) has disintegrated into a pile of bones and skin. The poor condition of the type specimens was another reason for redescribing this species.

Adult *P. holomelas* have been collected in the Sea of Okhotsk (Schmidt, 1950), Bering Sea (Gilbert, 1896; original description), and Gulf of Alaska. One of the specimens of *P. holomelas* (ZISP 26318, circled), identified by Schmidt (1950), was determined to be *P. rosaceus* Gilbert.

### Museum Acronyms

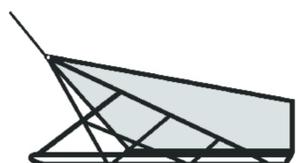
CAS: California Academy of Sciences  
USNM: United States National Museum  
ZISP: Zoological Institute, St. Petersburg  
SIO: Scripps Institution of Oceanography  
UBC: University of British Columbia



Very little is known about reproduction and development of eggs and larvae of deepwater liparid fishes, particularly of the genus *Paraliparis*. In this study, we describe the first complete developmental series of *Paraliparis* larvae, including yolk-sac stage, and early juveniles.

## Methods:

The *P. holomelas* lectotype and the specimens reported by Schmidt (1950) were examined at the National Museum of Natural History (NMNH) and ZISP, respectively. A photograph and radiograph of the paralectotype from CAS were also examined. Other adult material examined was obtained from the UBC and SIO fish collections. Counts and measurements follow Burke (1930). Caudal-fin morphology and counts of dorsal- and anal-fin rays, pleural ribs, and vertebrae were obtained by examining radiographs.



Two complete developmental series of *P. holomelas* larvae, including yolk-sac stages, were collected using an epibenthic sled. Other later-stage larvae, juveniles, and adults were collected with 60-cm bongo nets and mid-water trawls.

## *Paraliparis holomelas*

UBC 62-517 (#1),

female

75.0 mm SL

Kodiak I., Alaska



## Results:

Seven species of *Paraliparis* have been reported from the Bering Sea and Gulf of Alaska. A combination of morphological and meristic characters distinguish *P. holomelas* from other Bering Sea and Gulf of Alaska *Paraliparis* species.

### Distinguishing Morphological Characters of Adult *Paraliparis holomelas*

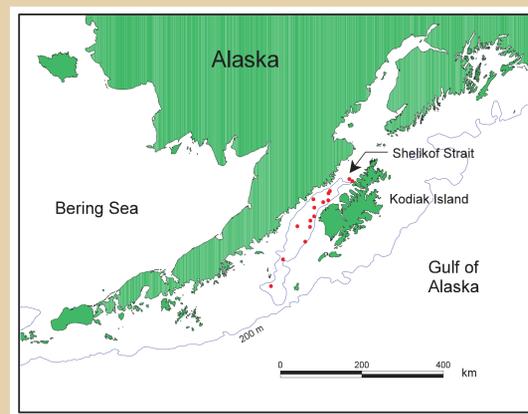
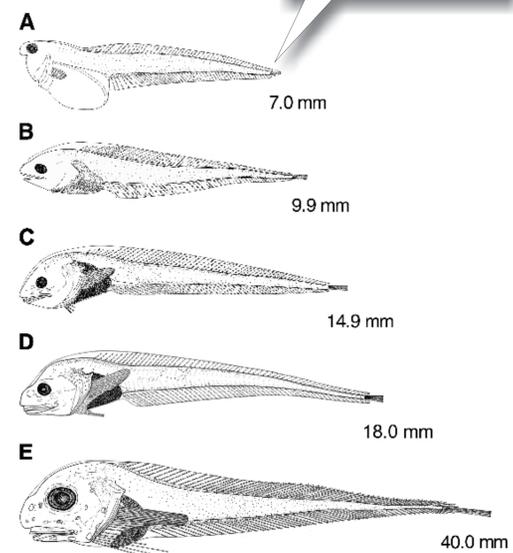
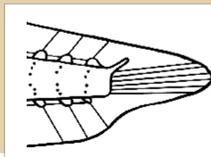
- ▶ Uniform coloration
- ▶ Horizontal mouth, inferiorly placed with lower jaw distinctly included
- ▶ Teeth in bands at least three wide
- ▶ Gill slit extending in front of 8-15 pectoral-fin rays
- ▶ Darkly colored peritoneal cavity and stomach

### Meristics of Bering Sea and Gulf of Alaska *Paraliparis* spp.

Species	Fin Rays				
	Dorsal	Anal	Pectoral	Caudal	Vertebrae
<i>P. cephalus</i>	50-57	44-51	14-16	4	56-64
<i>P. dactylosus</i>	54-56	49-51	28-30	8	59-61
<i>P. deani</i>	56-58	44-48	18-22	6	—
<b><i>P. holomelas</i></b>	<b>57-61</b>	<b>50-56</b>	<b>19-22</b>	<b>6 or 7</b>	<b>60-65</b>
<i>P. pectoralis</i>	55-59	49-52	28-32	7 or 8	61-64
<i>P. ulochir</i>	65-69	60-64	21-24	4	72-74
<i>P. rosaceus</i> *	57-69	53-60	18-22	6 - 8	67-74

\*Unverified records from Alaska.

Yolk-sac stage *Paraliparis* larvae have not been previously described. *Paraliparis holomelas* larvae hatch in late flexion stage with all principal caudal rays formed, have a large yolk mass (25-30% SL), and no pigmentation. Pigmentation on the peritoneal cavity and stomach is present on early postflexion larvae at about 10 mm SL. By 15 mm SL, small melanophores are scattered on the dorsal margin of the operculum, dorsal head and nape, and anterior lateral body. Cephalic sensory pores begin to develop in the infraorbital region. All fin ray development is complete by 18 mm SL. By 40 mm SL, the cephalic sensory system is complete and small melanophores cover the entire lateral body, characteristic of adult *P. holomelas*.



Larval *P. holomelas* were collected in the Gulf of Alaska during ichthyoplankton research cruises conducted by the Fisheries-Oceanography Coordinated Investigations (FOCI) program of the Alaska Fisheries Science Center (AFSC). Nearly all larvae were collected in the Shelikof Strait area near Kodiak Island, Alaska, at depths of 190 - 315 m.

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